

IN THE CLAIMS:

1 1. (Currently Amended) A cross-linking compound which comprises:

2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature;

3 (b) having at least one di- or poly- Group VI-A element of the periodic table of
4 elements; and

5 (c) a natural or synthetic polymer liquid at ambient temperature having a
6 molecular weight less than 30,000 ~~70,000~~.

1 2. (Original) A cross-linking compound as set forth in Claim 1 wherein said Group VI-
2 A element is sulfur.

1 3. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 is a multi-component polymer.

1 4. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 is saturated.

1 5. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 contains functional groups.

1 6. (Previously Withdrawn) A cross-linking compound as set forth in Claim 1 wherein
2 said polymer is hydroxy terminated polybutadiene.

1 7. (Original) A cross-linking compound as set forth in Claim 1 wherein said polymer
2 contains two or more chemical moieties.

1 8. (Original) A cross-linking compound as set forth in Claim 7 wherein said polymer
2 is a copolymer of butylene and butene.

1 9. (Previously Withdrawn) A cross-linking compound as set forth in Claim 1 including
2 aldehyde, phenol, phenol-aldehyde, melamine or epoxy resins.

1 10. (Previously Withdrawn) A cross-linking compound as set forth in Claim 9 wherein
2 said epoxy resins contains glycidyl moieties.

1 11. (Previously Canceled) A cross-linking compound as set forth in Claim 1 wherein said
2 polymer has a molecular weight less than about 70,000.

1 12. (Currently Amended) A cross-linking compound which comprises:
2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature;
3 (b) molecules or chemical moieties having two or more Group VI-A elements of
4 the periodic table of elements; and
5 (c) a natural or synthetic polymer liquid at ambient temperature having a
6 molecular weight less than 30,000 ~~70,000~~.

1 13. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 is a multi-component polymer.

1 14. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 is saturated.

1 15. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 contains functional groups.

1 16. (Previously Withdrawn) A cross-linking compound as set forth in Claim 15 wherein
2 said polymer is hydroxy terminated polybutadiene.

1 17. (Original) A cross-linking compound as set forth in Claim 12 wherein said polymer
2 contains two or more chemical moieties.

1 18. (Original) A cross-linking compound as set forth in Claim 17 wherein said polymer
2 is a copolymer of butylene and butene.

1 19. (Original) A cross-linking compound as set forth in Claim 12 wherein said Group
2 VI-A elements of the periodic table of elements are in terminal positions on the molecules or
3 chemical moieties.

1 20. (Original) A cross-linking compound as set forth in Claim 19 wherein at least one
2 of said Group VI-A elements of the periodic table of elements is sulfur.

1 21. (Original) A cross-linking compound as set forth in Claim 20 wherein the molecules
2 or chemical moieties are mercaptans.

1 22. (Original) A cross-linking compound as set forth in Claim 12 wherein said Group
2 VI-A elements of the periodic table of elements are not in the terminal position of the molecules or
3 chemical moieties.

1 23. (Original) A cross-linking compound as set forth in Claim 22 wherein said Group
2 VI-A elements of the periodic table of elements are poly-element moieties within the molecules or
3 chemical moieties.

1 24. (Original) A cross-linking compound as set forth in Claim 23 wherein at least one
2 of said Group VI-A elements is sulfur.

1 25. (Original) A cross-linking compound as set forth in Claim 23 wherein the molecules
2 or chemical moieties are Di-tert-butyl polysulfide, Di-tert-dodecyl polysulfide, Di-tert-nonyl
3 polysulfide or combinations thereof.

1 26. (Original) A cross-linking compound as set forth in Claim 23 wherein the poly-
2 element moiety is poly-sulfide.

1 27. (Previously Withdrawn) A cross-linking compound as set forth in Claim 23 including
2 additional cross-linking agents of aldehydes, phenols, phenol-aldehydes, melamine resins or epoxy
3 resins.

1 28. (Previously Withdrawn) A cross-linking compound as set forth in Claim 23 wherein
2 said epoxy resin contains glycidyl moieties.

1 29. (Previously Withdrawn) A cross-linking compound as set forth in Claim 28 wherein
2 the glycidyl moiety is neodecanoic acid, oxiranylmethyl ester.

1 30. (Previously Withdrawn) A cross-linking compound as set forth in Claim 1 including
2 vulcanization accelerators or co-reactant.

1 31. (Previously Withdrawn) A cross-linking compound as set forth in Claim 30 wherein
2 the accelerator or co-reactant is Tetramethyl Thiuram Disulfide.

1 32. (Previously Withdrawn) A cross-linking compound as set forth in Claim 30 wherein
2 the accelerator or co-reactant is Tetrabutylthiuram Disulfide.

1 33. (Previously Withdrawn) A cross-linking compound as set forth in Claim 30 wherein
2 the accelerator or co-reactant is a room temperature accelerator or co-reactant.

1 34. (Previously Withdrawn) A cross-linking compound as set forth in Claim 30 wherein
2 the accelerator or co-reactant is Dimethyl Cyclohexyl Ammonium Dibutyl Dithiocarbamate.

1 35. (Previously Withdrawn) A cross-linking compound as set forth in Claim 1 including
2 organic oils or solvents.

1 36. (Previously Canceled) A cross-linking compound as set forth in Claim 35 wherein
2 the organic oils or solvents are derived as a result of components fractionated from crude oil
3 processing.

1 37. (Previously Canceled) A cross-linking compound as set forth in Claim 36 wherein
2 the fractionated components are process oils.

1 38. (Previously Canceled) A cross-linking compound as set forth in Claim 37 wherein
2 the process oils are either aromatic, napthenic or paraffinic or combinations thereof.

1 39. (Previously Withdrawn) A cross-linking compound as set forth in Claim 35 wherein
2 the organic oils or solvents are derived from natural oils.

1 40. (Previously Withdrawn) A cross-linking compound as set forth in Claim 39 wherein
2 the natural oils are of either animal or vegetable origin.

1 41. (Previously Withdrawn) A cross-linking compound as set forth in Claim 39 wherein
2 the oil is of vegetable origin.

1 42. (Previously Withdrawn) A cross-linking compound as set forth in Claim 35 wherein
2 the organic oils or solvents contain elements of Group V-A of the periodic table of elements.

1 43. (Previously Withdrawn) A cross-linking compound as set forth in Claim 42 wherein
2 the Group V-A elements contained in said oils or solvents is either phosphorous or nitrogen or both.

1 44. (Previously Withdrawn) A cross-linking compound as set forth in Claim 43 wherein
2 said oils or solvents containing both phosphorous and nitrogen is lecithin.

1 45. (Previously Withdrawn) A cross-linking compound as set forth in Claim 1 which
2 includes chemical moieties capable of forming an oxidation-reduction reaction.

1 46. (Previously Withdrawn) A cross-linking compound as set forth in Claim 45 wherein
2 the chemical moieties capable of forming a oxidation-reduction reaction are iron sulfate and iron
3 chloride.

1 47. (Previously Canceled) A polymer modified asphalt or bitumen which comprises:
2 (a) asphalt or bitumen;
3 (b) an anhydrous compound liquid at ambient temperature having at least one
4 element chosen from Group VI-A of the periodic table of elements; and
5 (c) a natural or synthetic polymer.

1 48. (Previously Canceled) A polymer modified asphalt or bitumen as set forth in Claim
2 47 including aldehyde, phenol, phenol-aldehyde, melamine or epoxy resins.

1 49. (Currently Amended) A cross-linking compound which comprises:
2 (a) an anhydrous hydrocarbon compound liquid at ambient temperature having
3 elemental sulfur, oxygen or selenium therein, wherein said hydrocarbon compound is Di-tert-butyl
4 polysulfide, Di-tert-dodecyl polysulfide, Di-tert-nonyl polysulfide or combinations thereof; and
5 (b) an ethylenic polymer liquid at ambient temperature having a molecular weight
6 less than 30,000 ~~70,000~~, wherein said polymer is a copolymer of butylene and butene.

1 50. (Original) A cross-linking compound as set forth in Claim 1 wherein said anhydrous
2 hydrocarbon compound is an organic process oil from crude or coal processing.

1 51. (Original) A cross-linking compound as set forth in Claim 12 wherein said anhydrous
2 hydrocarbon compound is an organic process oil from crude or coal processing.